

## Course details

<b>Course code</b>	FM 3003
<b>Course Title</b>	Calculus III
<b>Course web site</b>	Fm3003.wikispaces.com
<b>Hours allocated</b>	30 lecture hours
<b>Aim</b>	This course is intended for students to learn methods and techniques of vector calculus. It will help students develop skills and ability to think quantitatively and analyze problems critically.
Intended <b>Learning Outcomes</b>	<p>At the <i>end</i> of this lecture series, <i>learners should be able to</i></p> <ul style="list-style-type: none"> <li>• Calculate <b>vector product, scalar product, scalar triple products</b> and <b>vector triple products</b>.</li> <li>• Solve vector related problems.</li> <li>• Do vector differentiation and to find <b>Gradient, Divergence, and Curl</b>.</li> <li>• Compute <b>normal</b> and <b>tangent</b> vectors of a vector valued function.</li> <li>• Calculate <b>Arc length</b> and <b>Curvature of</b> a vector valued function.</li> <li>• Analyze <b>continuous</b> and <b>differentiable</b> properties of a vector valued function.</li> <li>• Compute <b>double and triple integrals</b>.</li> <li>• Compute <b>directional derivatives</b> of multi-variable functions.</li> <li>• Find <b>extrema</b> of a given function of two variables.</li> <li>• Analyze local <b>maxima</b> and <b>minima</b> of a several variable function subject to equality constraints by using method of <b>Lagrange multipliers</b>.</li> <li>• Compute <b>line</b> and <b>surface integrals</b>.</li> <li>• Compute integrals by using <b>Green's theorem</b>.</li> <li>• Use <b>Stoke's theorem</b>.</li> </ul>